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TA-53 Facility Management

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TA-53 Facility Implementation Requirement

Unreviewed Safety Questions Process

53 FIR 300-00-02.0

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1.0 Introduction

The Los Alamos Neutron Science Center (LANSCE) is a non-nuclear accelerator complex and, as such, is not subject to the DOE Order 5480.21, "Unreviewed Safety Questions." However, some of the operations and experimental facilities associated with the LANSCE complex have been characterized as nuclear. Accordingly, such operations and facilities are required to meet DOE Order 5480.21. In addition, Los Alamos National Laboratory (LANL) has institutionally implemented this Order by issuing Laboratory Implementation Requirement (LIR) 300-00.06.0, "Nuclear Facility Safety Authorization," which requires that its nuclear facilities implement a change control process that includes an Unreviewed Safety Questions (USQ) process that meets DOE Order 5480.21.

2.0 Purpose

This procedure implements the requirements for a USQ process for those operations and experimental facilities associated with the LANSCE complex that have been characterized as nuclear.

The purpose of the USQ process is to provide contractors at DOE nuclear facilities with the flexibility to conduct day-to-day operations by authorizing the contractor to make certain changes without DOE approval. The contractor uses the USQ process to determine if the change involves a USQ. A USQ is involved if any one of several risk factors would be increased beyond that already reviewed and accepted by DOE. If a change involves a USQ, DOE approval is required prior to implementation. If the change does not involve a USQ, DOE approval is not required – the contractor is authorized to grant final approval for the change.

The USQ process is intended to be part of a broader change control process, which includes various steps such as: development of the final design details for a hardware modification, technical and safety reviews, development of an appropriate type of hazards analysis or safety analysis for the change, conducting post-modification testing, and revising documentation to reflect the change. The hazards analysis (or safety analysis) is key to the performance of the USQ process. This analysis should be comprehensive and integrated in that it addresses all pertinent hazards, risk controls, and resultant risks. A simple sign-off that the change has been reviewed by safety personnel with comments attached would probably be deemed insufficient. The USQ process does not determine if a change is safe, but rather who has the final approval authority for the implementation of the change.

Since the facility authorization basis defines the level of safety risk that has already been accepted by DOE, it is the baseline reference point for the USQ process. The USQ process also protects the integrity of the facility authorization basis on a continuing basis as changes are made, by ensuring the appropriate level of DOE involvement in those changes. The USQ process includes provisions to reflect implemented changes into the facility authorization basis periodically to keep it current. The USQ process also includes special actions to be taken in the event there is reason to believe that the authorization basis might be inadequate or if that there might be a reduction in a margin of safety defined in the facility authorization basis.

3.0 Scope and Applicability

This procedure applies to all personnel who are involved in the design; engineering; operations; inspection, testing, or other surveillance actions; and maintenance of equipment that might affect the safety of operations of the nuclear facility. Those personnel should be sufficiently familiar with this process to recognize a situation that needs to enter the Change Control and USQ processes.

Like the authorization basis, the USQ process is facility-based. This procedure applies to changes within the boundaries of operations and facilities at LANSCE that have been deemed to be nuclear. This procedure applies also to changes outside those boundaries if those changes have the potential to affect the safety of the operations within the boundaries.

This procedure applies primarily to changes, including: activities new to the facility (including tests, experiments, activities, or operations), changes to the hardware of the facility (including programmatic or experimental equipment), and changes to documents (including procedures). The USQ process applies to both permanent and temporary changes.

The USQ process applies to both proposed changes that have not yet been implemented (using the normal USQD) and "as-found" changes ("Discrepant As-Found Conditions") that have already been implemented (using the "backward-looking" USQD). If the as-found change is discrepant with the description of that configuration in the authorization basis (including the requirements specified in the Technical Safety Requirement (TSR) document), it would constitute a "potentially inadequate safety analysis."

This procedure applies to all types of hazards at the nuclear facility, including radiological hazards and other types of hazards. This procedure applies to potential consequences to all receptors, including facility workers and employees, workers and employees at other locations on the LANL site, and the public.

This procedure addresses the need for revisions (modifications and additions) to the requirements of TSRs associated with the nuclear facilities. This procedure also addresses the need to change the bases for a TSR.

The USQ process is required to be applied throughout the operational life cycle phase of the nuclear facility. If the nuclear facility is not producing the operational product, but rather is in a long-term surveillance and maintenance mode or is in the decommissioning and decontamination (D&D) mode, these are considered different types of "operations" and the USQ process should be applied. The USQ process must be applied as long as the facility remains a nuclear facility and has a hazard categorization of 1, 2, or 3, per DOE-STD-1027.

As discussed further under Preliminary Considerations (Pre-Screening), the USQ process is not applicable to all situations. Situations for which the USQ process is not applicable, but for which the activity does <u>not</u> require DOE approval, include:

- maintenance actions that involve the replacement of equipment with an exact replacement (that is, same manufacturer, model number, etc.),

- maintenance actions that involve the replacement of equipment with a component that is on the Approved Equivalent Parts list (for which a facility engineer has determined that the replacement part meets all the requirements relevant to the specific facility application),

- changes for which normal commercial practices are sufficient and a nuclear-grade formal change control process is not warranted,

- changes to programmatic or experimental operations and hardware that remain within the safety envelope already approved for those operations, [See Note at Section 9.3.5]

- changes that are exact restoration modifications, as corrective action to resolve discrepant as-found conditions, and

- purely editorial changes to documents (which do not change the technical content).

In addition, this procedure does not apply to consideration of hazards that are commonly recognized and accepted by the general public. These types of considerations include electrical outlets, hand rails, fire extinguishers, automobiles, office machines, and industrial machine shop equipment. In accordance with DOE-STD-3009-94, such hazards are addressed by OSHA programs and are not addressed in the facility authorization basis.

The USQ process is not the proper vehicle for addressing every new safety issues that may arise. A new safety issue could arise due to random failure of equipment, violations of safety controls such as TSRs, or personnel errors with respect to procedures. The occurrence reporting system addresses the direct and root causes of such situations, not the USQ process. The USQ process is not the appropriate mechanism to determine corrective actions aimed at preventing recurrences of failures, violations, and procedural non-compliances.

As discussed under Preliminary Considerations (Pre-Screening), section 9, the USQ process is not applicable to situations that are beyond the scope of DOE Order 5480.21, and hence the contractor is required to submit those changes to DOE for approval. Such situations include:

- Changes that are major modifications, in that they go beyond those necessary for day-to-day operations,

- Changes that introduce a technology that is new to the facility, and

- Changes to the requirements of the TSRs.

In addition, if management has pre-decided that he/she wants to submit the matter to DOE for safety review and approval, it is not necessary to use the USQ process to determine whether the matter is required to be submitted.

This procedure applies to situations where the contractor has reason to believe that the current authorization basis might be inadequate or that the margin of safety might be reduced. Such

situations might arise from the following entry conditions: (a) discrepant as-found conditions, (2) operational events or incidents, or (3) new information (including vendor notifications, technology advances, or the discovery of errors or omissions). This procedure does not require that every incidence of all these types of potential entry conditions be scrutinized to determine if a potentially inadequate authorization basis might exist. Rather, this procedure starts when the contractor has received information that provides reason to believe that the current authorization basis might be inadequate or that the margin of safety might be reduced.

4.0 Limitations and Precautions

4.1 Implementation of a change without prior DOE approval is not authorized unless (a) the USQ process has been performed for the change and (b) the result of the USQ screen or USQD is negative (signifying that the change does not involve a USQ).

4.2 If the result of the USQ process for a change is positive (signifying that the change involves a USQ) and facility management desires to implement that change as it is currently envisioned, DOE safety review and approval must be obtained prior to implementation.

5.0 Terms and Definitions

The terms and definitions of terms that are used in a special way in this procedure are provided in **Attachment A** to this procedure.

6.0 General Requirements

6.1 The general USQ process consists of three key steps:

- Pre-Screening
- USQ Screening
- USQ Determination (USQD)

These steps are illustrated by flow charts in **Attachment B** to this procedure. The first flow chart illustrates the fundamental USQ process in its context of being part of a change control process. The second flow chart illustrates the logic of the steps in the pre-screening. The third flow chart illustrates the logic of the USQ Screening steps.

6.2 The facility authorization basis is the baseline point of reference for the USQ process. The facility manager, or designee, maintains a list of the specific documents that are currently designated to be part of the facility authorization basis.

Personnel involved in the USQ process shall have immediate access to copies of all authorization basis documents. Those copies shall be verified to ensure that only the versions that are currently part of the authorization basis are used in the USQ process, such as through a controlled document process.

6.3 The sponsoring organization for a change might be a programmatic group or might be the TA-53 facility management team. To ensure appropriate coordination between the sponsoring organization and the USQ processing, the USQ screen and USQD shall be reviewed by the sponsoring organization. This review should ensure the accuracy of the description and understanding of the change, the accuracy of the hazards and risk factors associated with the change, and ensure that the risk control measures (preventive and mitigative measures) are appropriate and consistent with those which are already part of the change. This review also establishes agreement between the sponsoring organization on the change as it is described and evaluated in the USQ documents. The USQ process is an inappropriate vehicle for establishing new constraints on the change. The change should be evaluated the way it is presented, not in some way that would enhance or improve the change from a USQ perspective. The USQ process shall not establish or imply any constraints on the change.

The review by the sponsoring organization should be performed after the USQ screen and USQD, as appropriate, have been prepared, but might be performed after the technical review of the USQ documents by a qualified USQ reviewer has been completed.

6.4 In the event that the result of the USQ process is positive (a positive USQD) and the Management wants to implement the change as it is currently envisioned, a request for an amendment to the facility authorization basis should be developed, which describes the change and provides the information necessary to support the acceptability of the change. This request is then submitted to DOE for safety review and approval. DOE approval must be received prior to implementation of the change.

7.0 Graded Approach

The graded approach to the design, analysis, operation, and maintenance of equipment and its associated paper work is established in the facility authorization basis. This grading classifies the facility in terms of its hazards per DOE-STD-1027 and classifies equipment in the facility in terms of its importance to safety, using a grading scheme described in DOE-STD-3009-94. The USQ process does not provide an additional opportunity to apply the graded approach separate from the facility and equipment classifications. None of the steps in the USQ process may be eliminated on the basis of applying the graded approach. None of the requirements associated with these steps may be eliminated on the basis of applying the graded approach.

The only way that the graded approach may be applied to the USQ process is in the amount of detail provided to explain the answers in the USQD. For example, for a change to hardware that is classified as “safety-significant,” the USQD explanations would be expected to contain more detail than that for a change to hardware that is not important to safety.

8.0 Training and Qualifications for USQ Personnel

Personnel who prepare/originate the USQ documents (USQ pre-screen, USQ screen, and USQD), who perform the technical review of the USQ documents, and who approve the USQ documents are required to be trained. The facility manager, or designee, maintains a list of those personnel who are currently deemed qualified (or requalified) to perform the USQ process.

8.1 The following initial qualification requirements have been established for personnel performing the USQ process for the LANSCE experimental facilities that have been deemed to be nuclear facilities:

< Education: Bachelor of Science degree in engineering or one of the physical sciences, or equivalent approved by management.

< Experience: Five years of post-graduation experience with at least one year of this time at LANSCE, or equivalent approved by management.

< USQ Technical Training: Satisfactory completion of a LANL/LANSCE site-specific technical training course that addresses the generic DOE requirements and specific requirements in this Facility Implementation Requirement for USQ process.

Alternately, and pending the development of such a site-specific USQ technical training course, the following two separate training courses will suffice:

- DOE-approved generic training course on DOE Order 5480.21.
- Specific training on this Facility Implementation Requirement.

< Demonstrated knowledge of the facility authorization basis, as determined by the facility manager or designee.

< Satisfactory completion of the USQ process for at least six changes, of which at least four must have involved the preparation of a USQD (that is, not screened out), as determined by the facility manager or designee.

If an individual has completed the first four of the five qualification points above, he/she may perform the USQ process under the supervision of a fully qualified USQ preparer in order to acquire some experience with actual USQs at this facility. Such a partially-qualified individual may complete the pre-screening, and may prepare USQ screens and USQDs, but may not perform the technical review of such USQ documents prepared by someone else. After this experience has been achieved, the performance of the individual shall be evaluated by the Facility Manager, or designee. If that performance has been acceptable, the individual may then be considered to be a fully qualified USQ preparer.

The initial cadre of fully-qualified USQ personnel will be made up of individuals who have met the first four qualification points above and who have had satisfactory prior USQ experience, as determined by the Facility Manager.

8.2 Personnel who perform the technical review of the USQ documents shall be fully qualified as a USQ preparer. The individual assigned to review USQ documents is required to be independent only in the sense that he/she has not been involved in the preparation of the USQ documents for the matter being reviewed. The technical reviewer is not required to be organizationally independent.

8.3 Management personnel such as the Facility Manager who only take approval action on USQ documents, but do not prepare or technically review the USQ documents, may either be fully qualified as a USQ preparer, or alternately may complete a management awareness level training course on the USQ process and complete self-training including reviewing this procedure.

8.4 Personnel who perform the USQ process shall be retrained/requalified every two years. In order to provide for flexibility for scheduling and to avoid unnecessary adverse impacts on operations, personnel who have not been initially qualified or requalified within the past 30 months shall be deemed no longer qualified to prepare or technically review USQ documents. Feedback from the USQ training has indicated that most people get as much or more out of a second presentation of that training than the first presentation. The following requalification requirements for experience and retraining have been established.

8.4.1 Personnel who have been initially trained/qualified on the USQ process and have maintained their competency by the performance of at least four USQDs during the two-year period, shall be requalified the first time by completion of the following:

< Satisfactory completion of a second presentation of USQ technical training defined for initial training qualification, and

8.4.2 Personnel who have been requalified at least one time, shall be requalified every two years thereafter by completion of the following:

< Satisfactory completion of an approved USQ requalification training course, which is a distillation of the initial qualification technical training, and

NOTE: Pending the development of an approved USQ requalification training course, it will be acceptable to substitute the training required for initial USQ qualification.

8.4.3 Personnel who have been initially trained /qualified on the USQ process, but have not maintained their competency, shall repeat the initial training qualification.

9.0 PRELIMINARY CONSIDERATIONS (PRE-SCREENING)

The preliminary considerations (pre-screening) steps are intended to ensure that changes that do not need further USQ processing eliminated from the USQ process. This step basically addresses the applicability of the USQ process. It is intended to eliminate unnecessary and wasteful time

and effort in the USQ process and to focus the time and effort on changes that are important. In some cases, an item may not require further USQ processing and may be implemented on the basis of contractor final approval. For example, a maintenance action to install replacement equipment that is on the " Approved Equivalent Parts" list. In other cases, such as where the item is outside the scope of the USQ process, the item must be submitted to DOE for safety review and approval prior to implementation. As shown in the **process flow chart in Attachment B** to this procedure, the pre-screening addresses the five areas across the top row of the flow chart, which involve:

< Changes to a requirement of the TSRs,

< Activities (operations, activities, tests, and experiments) that are new to the facility,

< Changes to hardware, either facility hardware or programmatic/experimental hardware, including both proposed changes and already implemented "as-found" changes,

< Proposed changes to paper work, either procedures, design documents, or the bases for a TSR, and

< Potentially inadequate safety analyses, including potential reduction of the margin of safety.

Attachment C to this procedure provides the form to be used for the pre-screening. This form also addresses USQ screening and the USQD. Except where specifically instructed otherwise, all the steps of the pre-screening, USQ screening, and USQD are to be completed. The following information should be used in conjunction with this form.

The items included in the pre-screening section are not intended to imply that all such items are required to enter the USQ process, but rather to provide a method for addressing those items that might be entered into the USQ process.

9.1 Changes to a Requirement of the TSRs

Changes to a TSR requirement include both the modification of an existing requirement and the addition of a new requirement. All changes to the requirements of the TSRs require DOE safety review and approval. Changes to the bases for TSR requirements are addressed separately below.

If the matter under consideration involves a change to a requirement of TSRs, the sponsoring organization of the change should **proceed directly to the preparation of a request for an amendment to the facility authorization basis**. Guidance on the content of such a request is provided below and assistance on the development of this request may be obtained from the LANSCE facility management group.

9.2 New Activities (operations, activities, tests, and experiments)

Activities that are new to the facility may also involve new hardware or modifications to existing hardware, and new operating procedures or revisions to existing procedures. Therefore, when considering new activities, these other areas must be considered also.

9.2.1 Does the change introduce a technology that is new to the facility (for example, lasers)? If it does, the change is beyond the intended scope of the USQ process (as envisioned by DOE 5480.21) and hence requires approval by DOE prior to implementation. The sponsoring organization of such a change should **prepare a request for an amendment to the facility authorization basis**.

9.2.2 Is the new/modified hardware so extensive as to be beyond that needed to continue day-to-day operations? If so, the change is beyond the intended scope of the USQ process (as envisioned by DOE 5480.21) and hence requires approval by DOE prior to implementation. The sponsoring organization of such a change should **prepare a request for an amendment to the facility authorization basis**.

9.2.3 Management can decide to submit the change voluntarily to DOE for review and approval for reasons that are not related to whether or not a USQ is involved. If Management has made such a decision, it is not necessary to complete the USQ process to determine if the change might have been required to be submitted. The sponsoring organization of such a change should **prepare a request for an amendment to the facility authorization basis**.

9.2.4 Has the change control process has produced a documented hazards analysis or safety analysis for the change? If a hazards analysis or safety analysis has not been provided, the change should be returned to the change control process to develop such an analysis.

9.3 Changes to Hardware

The modification of existing hardware (or computer software) and the addition of new hardware (or computer software) are treated as changes to hardware. If a hardware change is being made, in some cases, there will also be changes in the associated procedures or design documents. Therefore, when considering hardware changes, consider also the other pre-screening areas.

This section addresses both planned changes and already implemented changes. An already implemented "as-found" change (that is, "discrepant as-found condition") might involve "potentially inadequate safety analyses" and if so, would require special actions.

9.3.1 Determine if the change is a proposed change (not yet implemented) or an "as-found" change. If it is a proposed change, continue these steps. If it is an "as-found" change, **go to step 9.3.11 below**.

Proposed Hardware Changes

9.3.2 Is the new hardware an exact replacement, that is, it has the same manufacturer, model number, etc. If so, the action is a pure maintenance repair action, which will exit the USQ process.

9.3.3 Is this change limited to the replacement of hardware with equipment that is on the Approved Equivalent Parts list? If so, the change will exit the USQ process.

9.3.4 Is the equipment facility equipment or is it programmatic/experimental equipment? If programmatic/experimental equipment, continue these steps. If not, **go to step 9.3.6 below**.

Proposed Programmatic/Experimental Hardware Changes

9.3.5 Does the new or modified programmatic/experimental equipment remain within the safety envelope established for that program/experimental activity? If so, this change will exit the USQ process. If the new/modified hardware is not bounded by that envelope, continue to the next step, as if it were a change to facility hardware.

> Note: The preceding step presumes that a safety envelope has been established for each programmatic/experimental activity and that the sum of all such safety envelopes is bounded by the facility authorization basis. As long as the programmatic/experimental envelope remains intact, the facility authorization basis can not be infringed upon. This step provides maximum programmatic/experimental flexibility to avoid curbing research creativity and still provides adequate safety protection.

Proposed Facility Hardware Changes

9.3.6 Some hardware or equipment in the facility is a normal part of any facility and is devoid of safety considerations, for example changes to a water cooler in the hallway. For such changes, normal commercial practices may be sufficient and a nuclear-grade formal change control process is not warranted. Care might be needed to avoid systems interactions, such as Seismic Class II equipment mounted above Seismic Class I equipment. The facility change control process may provide assistance in deciding if commercial practices are sufficient. If normal commercial practices are sufficient, this change will exit the USQ process.

9.3.7 Does the change introduce a technology that is new to the facility (for example, lasers)? If so, the change is beyond the scope of the USQ process (as envisioned by DOE 5480.21) and hence requires approval by DOE prior to implementation. The sponsoring organization of such a change should **prepare a request for an amendment to the facility authorization basis**.

9.3.8 Is the new/modified hardware so extensive as to be beyond that needed to continue day-to-day operations? If so, the change is beyond the scope of the USQ process (as envisioned by DOE 5480.21) and hence requires approval by DOE prior to

implementation. The sponsoring organization of such a change should **prepare a request for an amendment to the facility authorization basis**.

9.3.9 Management can decide to submit the change voluntarily to DOE for review and approval, for reasons that are not related to whether or not a USQ is involved. If management has made such a decision, it is not necessary to complete the USQ process to determine if the change might have also been required to be submitted. The sponsoring organization of such a change should **prepare a request for an amendment to the facility authorization basis**.

9.3.10 Has the change control process produced a documented hazards analysis or safety analysis for the change? If not, the change should be returned to the change control process to have such an analysis developed. If the safety analysis is available, this change will require USQ screening.

"As-found" Changes

An "as-found" change, sometimes referred to as "discrepant as-found conditions," is a discrepancy between the hardware and the facility documentation. The documentation involved could be: (a) routine facility documentation, such as facility design descriptions, system design descriptions, piping and instrumentation diagrams (P&IDs), and process flow diagrams; (b) some part of the facility authorization basis such as the FSAR, BIO, SAD, or the DOE SER; (c) that special part of the authorization basis called the TSRs. Initially, it may not be obvious if the as-found hardware is correct, or if the documentation is correct.

A discrepant as-found condition would constitute a potentially inadequate safety analyses (PISA), if there is a discrepancy with the TSRs or if the as-found change involves SSC(s) that are described in the facility safety analyses. Whether the changed hardware involves SSC(s) described in the safety analyses is determined during the USQ screening.

"As-found" changes require USQ consideration from two different perspectives. First, the conditions that led to the change are evaluated using what has been termed the "backward looking" USQ approach. Second, when corrective actions are being proposed for the "as-found" change, those changes have to be evaluated as would any other hardware modification.

9.3.11 If evaluating the conditions that led to the "as found" change, continue with these steps. If evaluating a proposed corrective actions related to the as-found change, **go to step 9.3.13 below**.

9.3.12 Does the as-found change involve a discrepancy with the TSRs? If so, the condition would constitute a potentially inadequate safety analysis. In that case, **proceed immediately to the PISA, section 12 below.** If not, whether the hardware involves SSCs identified in the remainder of the authorization basis will be determined during the USQ screening.

Corrective Actions for As-Found Changes

A discrepant as-found condition may constitute a non-conformance and hence, it might require being addressed by the facility quality assurance (QA) process. In a typical QA program, there is a set of standard dispositions for non-conformances. These may include: a "replace" disposition in which the non-conforming part is replaced with the part that was supposed to be installed (This disposition is sometimes called a "restoration modification."), a "Use-As-Is" disposition in which the non-conforming part is justified as not being the part that was intended but is nonetheless an acceptable part, a "rework" disposition in which the part is made to agree better with the requirements for the part (but it remains not fully compliant with the requirements), and a "repair" disposition in which the part is reworked to the point that it becomes fully compliant with the requirements.

9.3.13 If the disposition of the discrepant as-found condition is a "restoration modification," then this corrective action hardware modification will exit the USQ process. If not, the corrective action is a design change that needs to be considered further within the USQ process.

9.4 Changes to Paper Work

When considering changes to paper work, consider also the other pre-screening areas. When considering any change, it is important to identify all the paper work that may be affected by the change. Paper work changes could affect procedures, design documents, or the bases for a TSR. Each of these is considered below.

9.4.1 If the paperwork change is purely editorial and has no technical content, it may be eliminated from further consideration within the USQ process.

9.4.2 If the change involves a procedure, it will require USQ Screening.

9.4.3 If the change involves a design document, such as an engineering drawing or design specification, it is treated as a design change and USQ Screening will be needed.

9.4.4 If the change involves changing the bases for a TSR, prepare the corresponding change to the FSAR/BIO. Then, the USQ Screening will assess the change to the FSAR/BIO.

9.5 Potentially Inadequate Safety Analyses

The term "potentially inadequate safety analyses" (PISA) as used in this procedure includes a potential reduction in the margin of safety. The term "safety analyses" as used in DOE 5480.21 is intended to avoid confusion with a specific document called a Safety Analysis Report (SAR) and is equivalent to the aggregate of all the documents in the facility authorization bases.

The general thrust of a PISA is that, for whatever reason, the current authorization basis does not adequately reflect the actual physical configuration of the facility for the current operations, or the analysis contains errors. Proposed new activities are not considered to be a PISA if they are addressed in accordance with the applicable sections of this procedure,

because the authorization basis is to reflect the current operations, not necessarily new operations yet to be implemented.

A PISA may arise from any of three generic types of entry conditions: (1) a discrepant as-found condition, (2) an operational event or incident, and (3) new information. If the as-found change is a discrepancy with the TSRs, it would constitute a PISA (as provided for in the pre-screening section). Similarly, if a discrepant as-found condition involves SSCs that are identified in the authorization basis, that condition would constitute a PISA (as provided for in the USQ Screening section). New Information includes: New information sent by a vendor, technology advances, or the discovery of errors and omissions in an analysis. Analytical errors include using an improper model, inappropriate assumptions associated with that model, incorrect input values, incorrect calculations, or inappropriate interpretations of the analytical results.

Anytime that an individual has reason to believe that the facility authorization basis might be inadequate, the situation should be reported to management immediately. The Facility Manager is then allowed a "reasonable period" to confirm the existence of the potential for an inadequate safety analysis prior to entering the PISA part of the USQ process. This "reasonable period" is typically a few hours, up to a day or so. It is not days, weeks, or months. However, the "reasonable period" might be longer than a few hours if the facility is not currently operating and the confirmation is made prior to resuming operations.

After the Facility Manager has confirmed the potential for an inadequate analysis that is part of the facility authorization basis, certain actions are required:

1. Take those immediate actions to ensure the safety of personnel and place the facility in a safe and stable state.

2. Notify DOE of the PISA, as an off-normal event under DOE O 232.1A. Such a notification must be explicitly identified as a "potential unreviewed safety question (USQ) involving a potentially inadequate safety analyses."

3. Perform a USQD on the situation of having a potentially inadequate safety analysis. If it is already known that the situation involves a PISA, USQ screening is not permitted.

4. Maintain any operational restrictions that were initiated as part of step 1 above, at least until the USQD has been completed. Submit the USQD to DOE.

   NOTE: This is the only situation in which DOE 5480.21 requires that the completed USQD itself be submitted. In other situations, the description of the change and appropriate justification information are submitted to DOE for review and approval, not the USQD itself.

   If the USQD is negative, meaning that the potential for inadequate analyses turned out not to actually be an inadequate safety analysis, the operational restrictions may be removed when the USQD has been submitted to DOE. If the outcome of the USQD is positive, meaning that an actually inadequate safety analysis exists, the situation is required to be reported to DOE as an Unusual Occurrence under DOE O 232.1A. Such

a report must be explicitly identified as an "actual unreviewed safety question (USQ) involving an inadequate safety analyses."

When new or upgraded analyses are developed, there may be a tendency to think that the previous analyses might have been inadequate, simply on the basis that the results are different. In the special situation that the facility is upgrading its safety documentation to achieve compliance with DOE Order 5480.23, the results of (1) new analyses and (2) upgraded analyses are specifically exempted from the USQ process. The new or upgraded analyses must have been identified in the implementation plan for upgrading to DOE 5480.23. The reason for this exemption is that such results are already required to be submitted to DOE for review and approval, as specified in DOE Order 5480.23. Accordingly, there is no necessity for the new results to also go through the USQ process to determine if DOE review and approval is required also by DOE Order 5480.21. However, if an existing analysis that has not been identified for upgrading to DOE Order 5480.23 is found to be potentially inadequate, that situation is not exempted and hence would be required to enter the USQ process as a PISA.

10.0 USQ SCREENING

The purpose of the USQ screening step is to determine if it is necessary to expend the time and resources to prepare a USQD. Where there is appropriate justification, certain items that enter the USQ process may not require the detailed evaluation of a USQD. This screening is a set of simple GO/NO-GO decisions, without evaluative contemplations. The USQ screening step encompasses both the basic screening criteria from section 10.b. of DOE Order 5480.21 and secondary screening that is a provided for by the guidance chapters attached to that Order. In this procedure, basic screening and secondary screening have been consolidated into one screening section. As shown in the **process flow chart in Attachment B**, USQ screening addresses three major areas: new activities, hardware changes, and procedure changes.

A part of Attachment C, the USQ form, addresses the USQ screening steps. Except where specifically instructed otherwise, all the steps of this form are to be completed. The following information should be used in conjunction with this form.

For the purposes of the 1L Target at the Lujan Center, the Basis for Interim Operations (BIO) provides a description of the LANSCE accelerator complex to explain the environment and interfaces with the 1L Target operations. This description is intended to be background information only, as if it were an appendix to the BIO. For the purposes of the USQ screening, that description is not considered "identified in the facility authorization basis" for the 1L Target operations. The BIO defines a boundary for the nuclear operations associated with the 1L Target. Operations and activities, hardware, and procedures within that boundary are considered "identified in the facility authorization basis" for the 1L Target operations.

10.1 New Activities

Does the change involve a new activity (operation, activity, test, or experiment) that is not bounded by the activities listed in Attachment D to this procedure?

Attachment D to this procedure is a list of all those activities identified in the facility authorization basis. Pending the development of this attachment, this question will need to be addressed manually against all the authorization basis documents.

If the answer to this question is YES, it will be necessary to prepare a USQD.

10.2 Hardware Modifications

10.2.1 **Does this change involve a hardware modification (or a revision to a design document) that affects any of the structures, systems, or components (SSCs) listed explicitly in Attachment E to this procedure?**

Attachment E to this procedure is a list of all those SSCs identified explicitly in the facility authorization basis. Pending the development of this attachment, this question will need to be addressed manually against all the authorization basis documents.

If the answer is YES, it might be necessary to prepare a USQD depending on the outcome of the other questions in this section. If the answer is NO, this change will screen out, if the other screening areas are not involved.

10.2.2 **Is this hardware modification (or revision to a design document) related to any of the SSCs that are <u>implicitly</u> included on the list in Attachment E?**

Changes to equipment that may be described in the authorization basis documents only implicitly may need a USQD prepared. Implicitly described SSCs are those that perform a function that is essential to the performance of the explicitly described equipment. For example, a continuous air monitor must include a vacuum pump to draw the air across a filter medium, a mechanism to move the filter at a predefined rate, a nuclear sensor to measure the activity of the particles collected on the filter, and an alarm mechanism which activates when the measured radiation level exceeds a predetermined setpoint. Engineering judgement is used to determine if the hardware modification being considered affects one of these implicitly described pieces of equipment.

If the answer is YES, it might be necessary to prepare a USQD depending on the outcome of the other questions in this section. If the answer is NO, this change will screen out, if the other screening areas are not involved.

10.2.3 **For new hardware or systems to be installed (that are not yet identified in the authorization basis), is the nature of the new equipment such that if the authorization basis were being updated after this new equipment has been installed, would it be identified in the updated authorization basis?**

This screening criteria is intended to avoid the possible situation that new equipment might be screened out, simply because of the way the criteria are worded, and hence that new equipment would not have a USQD prepared. Engineering judgement is used to determine if the new equipment would be described in an updated

authorization basis. In the situation where the new equipment provides additional protection and would be classified either as a safety-class SSC or as a safety-significant SSC, it warrants having a USQD prepared. Other equipment may also warrant a USQD.

If the answer is YES, it might be necessary to prepare a USQD depending on the outcome of the other questions in this section. If the answer is NO, this change will screen out, if the other screening areas are not involved.

10.2.4 **Is this hardware modification completely covered by a prior USQD, including any differences in location?**

This is a secondary screening consideration that is intended to avoid unnecessary time and resources. For example, a modification may have been made to a water pump in one area of the facility previously and now it is desired to make the same modification to other water pumps. If, after all differences between the two situations are considered including any differences that might arise because of different uses for the pump, room location and ambient conditions, the modification has been fully addressed by the previous USQD, there is no requirement to repeat that USQD.

If the answer to this criterion is YES, it would mean that hardware modification that may have met the other criteria in this section would nonetheless not require the preparation of a USQD. If the answer is NO, any hardware modification that met any of the other criteria in this section would require the preparation of a USQD.

10.2.5 Section Summary

This item merely summarizes the results of the USQ screening for the area of hardware modifications. If the answer to questions 10.2.1, 10.2.2, or 10.2.3 is YES, and the answer to question 10.2.4 is NO, then the hardware modification "screens in" and hence a USQD must be prepared.

10.2.6 Discrepant As-Found Condition

As discussed previously, there is the possibility that a discrepant as-found condition may involve SSCs that are identified in the authorization basis. If so, the situation would involve a potentially inadequate safety analyses (PISA). This step addresses that question. If the USQ screening was entered in consideration of a discrepant as-found condition and the answer to either question 10.2.1 or 10.2.2 is YES, then a PISA is involved.

10.3 Changes to Procedures

As discussed previously, this USQ process considers three types of changes to paper work: changes to procedures, changes to design documents, and changes to the basis of a TSR. During the USQ screening, these changes are gauged with regard to their importance. The procedures that may be considered for changes are gauged against whether that procedure

is identified in the authorization basis, either explicitly or implicitly. Changes to design documents, that are beyond editorial changes, are treated as design changes (as potential future hardware modifications). A change to the basis of the TSRs, that do not involve a change to a TSR requirement, is gauged using the corresponding change to the authorization basis. If the FSAR/BIO change affects hardware or procedures identified in the authorization basis, a USQD must be prepared.

10.3.1 **Does this change involve a revision to a procedure that is listed in Attachment F to this USQ procedure?**

Attachment F to this procedure is a list of all those procedure identified in the facility authorization basis. This attachment includes those procedures described or identified in the authorization basis, as well as areas that indicate that administrative controls will be implemented to control the activities. Pending the development of this attachment, this question will need to be addressed manually against all the authorization basis documents.

If the answer is YES, it might be necessary to prepare a USQD depending on the outcome of the other questions in this section. If the answer is NO, this change will screen out, if the other screening areas are not involved.

10.3.2 **Does the revision involve a procedure that is implicitly included in Attachment F, because it is an operational, surveillance, or maintenance procedure for a safety SSC that is identified in the authorization basis?**

Procedures for operations, surveillance, and maintenance of general systems in the facility are not considered to be implied procedures. However, because of the Quality Assurance considerations, if a system has been classified as a safety SSC, procedures for operations, surveillance, and maintenance for that system are implied directly. The term “surveillance” as used here means those activities that are required by a Surveillance Requirement of the facility TSRs and does not necessarily include all inspections, tests, or calibrations.

If the answer is YES, it might be necessary to prepare a USQD depending on the outcome of the other questions in this section. If the answer is NO, this change will screen out, if the other screening areas are not involved.

10.3.3 **Does the revision involve a procedure that is implicitly included in Attachment F, because it is the top-level procedure that implements a Safety Management Program that is committed to in the authorization basis?**

The need for implementation procedures is obvious for Safety Management Programs that are committed to in the authorization basis. For example, a SAR may state that a nuclear criticality safety program will be implemented that conforms to a particular ANSI standard. Then, those top-level procedures necessary to meet this commitment are included implicitly in the authorization basis. This criteria does not affect lower

tier implementation procedures, so long as the effects of changes there are rolled up and do not result in a change to the top-level procedures.

> NOTE: When changes in the top-level implementing procedures are evaluated in the USQD, it is to be expected that in general the results will be a negative USQD if the description of the safety management program in the authorization basis remains correct. That is, if the characteristics of the program that DOE relied upon remain correct, there should be no increase in any of the USQ risk factors and hence a USQD would be negative. However, in some special cases, DOE may have relied upon a level of detail below the description in the authorization basis that would need to be evaluated.

If the answer is YES, it might be necessary to prepare a USQD depending on the outcome of the other questions in this section. If the answer is NO, this change will screen out, if the other screening areas are not involved.

10.3.4 **For a new procedure (that is not identified in the authorization basis), is the nature of the procedure such that, if the authorization basis were being updated after this new procedure had been implemented, would it be identified in the authorization basis?**

This question is analogous to question 10.2.3 for new hardware and similarly is intended to ensure that new procedures do not get screened out simply because they are not yet described in the authorization basis. Engineering judgement is used to decide if the procedure would be identified in an updated SAR/BIO.

If the answer is YES, it might be necessary to prepare a USQD depending on the outcome of the other questions in this section. If the answer is NO, this change will screen out, if the other screening areas are not involved.

10.3.5 **Is the procedural revision covered by one of the categorical exclusions listed in Attachment G to this procedure.**

This is a secondary screening consideration. Attachment G lists all those categorical exclusions that have been developed and approved for use with this USQ procedure.

If any one or more of questions 10.3.1 through 10.3.4 are answered YES, and the answer to this question (10.3.5) is also YES, the change "screens out" and hence the preparation of a USQD is NOT required. If the answer to question 10.3.5 is NO, the next question addresses another secondary screening consideration and the revision might still screen out.

10.3.6 **Is this procedural revision completely covered by a prior USQD?**

This is a secondary screening consideration. If any one or more of questions 10.3.1 through 10.3.4 are answered YES, and the answer to this question (10.3.6) is also YES, the change "screens out" and hence the preparation of a USQD is NOT required.

The remainder of the USQ screening steps as shown on the USQ form in Attachment C is summary information regarding the overall results of the screening.

11.0 UNREVIEWED SAFETY QUESTION DETERMINATION (USQD)

The purpose of this step in the USQ process is two fold: (1) To determine if the matter involves a USQ, and (2) To capture the technical basis for the conclusions reached. The criteria to be used in the preparation of a USQD are:

- **Would the matter increase the probability of occurrence of an accident previously evaluated in the facility authorization basis?**
- **Would the matter increase the consequences of an accident previously evaluated in the facility authorization basis?**
- **Would the matter increase the probability of malfunction of a safety SSC previously evaluated in the facility authorization basis?**
- **Would the matter increase the consequences of malfunction of a safety SSC previously evaluated in the facility authorization basis?**
- **Would the matter create the possibility of an accident of a different type than any previously evaluated in the facility authorization basis?**
- **Would the matter create the possibility of a malfunction of a safety SSC of a different type than any previously evaluated in the facility authorization basis?**
- **Would the matter reduce any margin of safety defined in the facility authorization basis?**

These criteria are applied by asking each question and providing a Yes or No answer. For each answer a defensible explanation (basis) shall be provided as to why the answer was reached. The level of detail that should be provided in the explanation should be such that a competent engineer who is not from this facility could follow the logic used, and concur technically with the conclusions without having to come back to the USQD preparer with questions.

If the matter under consideration is an as-found change (Discrepant As-Found Condition), the backward-looking approach should be used. In this approach, the USQD preparer looks back in time, figuratively, to a point before the change was implemented. Then, the as-found change is treated as a proposed change.

If the matter under consideration is a potentially inadequate safety analyses, the purpose of the USQD is to assess the significance of the situation. This is accomplished either by considering the backward-looking approach for a discrepant as-found condition, or by estimating the impact of the correction of the analytical error(s) to determine if a USQ exists. The estimated corrected analysis might indicate that, for a particular family of accidents (such as fires), the accident scenario that was previously considered to be the bounding worst case is no longer bounding. This might be the case because the estimate of the corrected consequences are now greater. This situation would be considered to be an actual inadequate safety analysis.

The generic DOE training course on DOE Order 5480.21 provides considerable guidance regarding how to apply these criteria. This information should be used during the preparation of the USQD.

When evaluating for "increases in consequences" of an accident, if the previously bounding case for that family of accidents remains the bounding case, then generally there is no increase in the consequences within the USQ process. While this is appropriate for public safety, adequate protection of workers requires further consideration. Sometimes, the existing design may remain adequate to protect the public, but additional protection might be warranted to protect workers. The worker might find that during an accident he or she would need additional or different protective actions, administrative controls, or protective gear.

If additional protective measures (either administrative or hardware-related) are warranted during a postulated accident situation to ensure adequate protection of the public or to provide worker safety, the USQD should conclude that the USQD is positive. This would be because either an increase in probability or an increase in consequences of an accident has occurred.

This point is expected to be most pertinent in one of two situation: (1) a change to a procedure, or (2) for a new operation, activity, test, or experiment that is not described in the currently approved authorization basis. If additional protective measures are warranted, this implies that some postulated accident is more likely or the consequences of the accident are more severe. One could view this situation as a change that has two distinct parts. The first part causes some increase in the probability or consequences of an accident. The second part provides additional protective measures that offset the increase(s) in probability or consequences. Consolidating these two offsetting parts of a change may be effective in reducing the net risk to an acceptable value, but does not eliminate the need for DOE review and approval action on the change. DOE wants to be involved for several reasons. First, to verify that the degree of protection is adequate. Second, to ensure that the authorization basis is properly revised to include the additional protective measures. Third, to verify that any hardware involved is properly classified (for example, as a safety-significant SSC) and hence will receive appropriate surveillance and maintenance.

The contractor should make every effort to complete its USQDs without DOE involvement. DOE has charged the contractor with performing the USQ process to determine if a USQ is involved. At times, there will be borderline cases or "grey areas" where engineering judgement will play a large role in the determination. The contractor should complete the USQD with sufficient justification to defend its conclusions, despite whether the outcome is positive or negative. While DOE and the contractor are "partners" in many senses, when it comes to its nuclear safety regulatory and oversight responsibilities, DOE must maintain an appropriate degree of independence from the contractor's activities.

If the answer to any one of the USQD criteria is YES, then the result is a Positive USQD, signifying that the change does involve a USQ, and that DOE approval must be acquired prior to implementation of the change. If all the answers to the USQD criteria are NO, then the result is a Negative USQD, signifying that the change does NOT involve a USQ, that DOE review and approval is NOT required, and that contractor final approval is sufficient.

12.0 PREPARATION, REVIEW AND APPROVAL

In addition to the qualification requirements in 8.0, the following applies to the processing of USQ documentation.

12.1 Preparation

Preparers should contact the LANSCE-FM authorization basis specialist during preparation if it appears that a USQD will be positive.

12.2 Quality Review

To ensure consistent quality of USQ documentation, a representative sample of completed USQDs, pre-screens, and screens will be reviewed quarterly by the LANSCE-FM authorization basis specialist.

12.3 Approval

The line manager responsible for the nuclear operation/facility shall approve USQDs, pre-screens, and screens. Approvers may assign a designee to approve pre-screens and screens during other than standard working hours. In addition to the line manager, the Facility Manager and the LANSCE Division Director shall approve all positive USQDs.

13.0 DOCUMENTATION AND REPORTING

DOE Order 5480.21 authorizes the contractor to grant final approval and implement certain changes provided that (1) the USQ process has been applied, and (2) the results of the USQ process are negative, signifying that the change does NOT involve a USQ. The USQ documents, that is, the pre-screening, USQ screening, and USQD, are essential records to demonstrate compliance with these requirements. The USQ documents show how the USQ process was applied in a specific situation and capture the technical basis for the conclusions reached.

13.1 Document Retention

Originals of USQD documents shall be forwarded to LANSCE-FM for retention. The USQ documents (that is, the completed pre-screening, USQ screening, and USQD forms) are to be maintained for the full operational lifetime of the facility. See Section 3.0.

13.2 Records Turnover

In the event that the operating contractor for the facility should change, this contractor is required to turn over all USQ documents to the new contractor.

13.3 Reporting

13.3.1 For situations involving a potentially inadequate safety analyses:

- An initial notification report to DOE using the ORPS reporting system as an Off-Normal situation, and explicitly identified as a "potential unreviewed safety question (USQ) involving a potentially inadequate safety analyses."

- Submittal of the completed USQD form.

- If the outcome of the USQD is positive, signifying an actual USQ, a report to DOE using the ORPS reporting system as an Unusual Occurrence, and explicitly identified as an "actual unreviewed safety question (USQ) involving an inadequate safety analyses."

13.3.2 For situations involving a planned or proposed change:

There is no reporting required for a planned change regardless of whether the USQD is positive or negative, because the change has not yet been implemented.

If management desires to implement the planned change as it is currently envisioned and that change involves a USQ, the approval of DOE is required prior to implementation. However, this is considered to be a routine submittal, not a "reporting" matter. For LANL, ESH-3 serves a coordinating function in submitting changes that involve a USQ. Therefore, all such changes are provided to ESH-3 for transmittal to DOE.

13.4 Summary Report

The contractor is required to provide for DOE an annual summary of changes that have been actually implemented under the provisions of DOE Order 5480.21. For LANL, ESH-3 serves a central coordinating role in this matter.

This summary will provide the following information for each change that involved a USQD: The number and title of the matter, and a brief summary of the matter (a few sentences). For USQ situations that were screened out and hence a USQD was not prepared, the summary shall include the number and title of the matter.

13.5 Updating the Authorization Basis

On an annual basis, the facility authorization basis is required to be updated to reflect those changes that have been actually implemented under the provisions of DOE Order 5480.21. These updates are to reflect all changes in the facility configuration, procedures, and operations, including those implemented under negative USQ screens and negative USQDs. The authorization basis documents include a FSAR or a Basis for Interim Operation (BIO) as appropriate.

The level of detail in the authorization basis documents shall not be increased (that is, do not provide more details than the level currently in the authorization basis). Therefore, especially for changes to items that are described only implicitly in the authorization basis, the appropriate reflection of those changes may not result in any actual wording changes.

14.0 REQUESTS FOR AMENDMENTS TO FACILITY AUTHORIZATION BASIS

The following format should be used for requesting an amendment to the facility authorization basis. This format is to be used for submitting changes for which the USQD is positive. This format may also be used for other situations for which a request for amendment is needed. For example, a change to the hazard categorization level for a facility requires DOE approval, but is not be addressed by the USQ process.

The document shall take the form of a letter from the Facility Manager addressed to the Senior Authorization Basis Manager of DOE/LAAO. To the maximum extent practical and appropriate, that letter should address the following topics:

(1) an introductory summary of the purpose of the letter and its contents,

(2) a description of the situation that generated the need for action,

(3) alternative actions considered,

(4) a description of the selected action,

(5) engineering technical considerations,

(6) safety implications of the action, including the general results of the USQ process when applicable,

(7) programmatic implications,

(8) budgetary considerations,

(9) schedule considerations, and

(10) basis upon which it is believed that DOE should approve the action.

The request for amendment should not include the completed USQ documents themselves. Instead, the general results of the USQ process should be summarized. For example, a statement might be made such as: “This change was evaluated using the USQ process, which concluded that the change does involve a USQ, because it would increase the probability of an accident previously evaluated in the authorization basis.” Submitting the USQ documents to DOE might cause a shift in the focus of the DOE review from the acceptability of the change to the way in which the USQ documents were prepared. The USQ documents remain available to be reviewed by DOE as part of its oversight responsibilities or upon special request.

The request letter should then be forwarded to ESH-3 for transmittal to DOE.

ATTACHMENT A
TERMS AND DEFINITIONS

Accident. An unplanned sequence of events that results in undesirable consequences which may be anticipated to occur at least once in the operational lifetime of the facility and those design basis events (or evaluation basis events) considered sufficiently likely to be considered in the authorization basis for the facility.

Approved Equivalent Part. A part that has been evaluated under a defined management process and the conclusion of that evaluation is that the part meets all the design requirements that are pertinent to its specific application and service environment. So-called "manufacturer's equivalents" are not included unless they have been evaluated by this process with the conclusion that they meet all the local requirements.

Authorization Basis. Those aspects of the design basis and operational requirements relied upon by DOE to authorize operations considered important to the safety of the facility operations. The authorization basis for the facility consists of documents such as: the Facility Safety Analysis Report (FSAR), a Basis for Interim Operations (BIO), the Technical Safety Requirements (TSRs), the DOE Safety Evaluation Report (SER), and facility-specific commitments.

Change. Any alteration or addition, temporary or permanent, to the facility structures, systems, or components (SSCs) or the configuration of those SSCs, facility documentation, design requirements or specifications, facility software or procedures. For the purposes of the USQ process, the replacement of a SSC with one that is on the facility "Approved Equivalent Parts" list is not considered a change.

Change Control. A process that ensures that all changes are properly identified, reviewed, approved, implemented, tested, and documented.

Defense in Depth. An approach to the safety of nuclear facilities that builds in layers of defense against release of hazardous materials so that no one layer by itself, no matter how good, is completely relied upon. Elements of defense in depth include a high level of design quality; automatic safety systems; competent operating personnel; means to alert the operator to an abnormal situation; manual operator actions, using manual safety systems and other actions, to halt the progression of events toward a serious accident; and SSCs that can mitigate the consequences of accidents. SSCs that are major contributors to defense in depth are designated as safety-significant SSCs.

Discrepant As-Found Condition (also, "As-Found" change). A situation where the actual physical configuration of the facility does not agree with the facility documentation. If the documentation involved is the authorization basis, the discrepant as-found condition constitutes a "potentially inadequate safety analyses" (PISA).

"Other" Safety SSC. A SSC that is important to safety but does not reach the threshold of being classified as safety-class SSC or safety-significant SSC. The majority of engineered features will not be classified as safety-class SSCs or safety-significant SSCs even though they perform safety

functions. Ignoring such a SSC would violate the safety basis documented in the SAR or BIO. [See DOE-STD-3009-94, pages 8, 9.]

Risk. The quantitative or qualitative of possible loss that considers both the probability that an event will occur and the consequences of that event.

"safety analyses" As this term is used in DOE Order 5480.21, the total population of documents that comprise the facility authorization basis. This term is use to distinguish this set of documents from the single document called a Safety Analysis Report (SAR).

Safety Structure, System, or Component (Safety SSC). A SSC that has been designated as "safety-class," "safety-significant," or otherwise important to safety in accordance with DOE-STD-3009-94.

Safety-Class SSC. A SSC that is necessary to keep hazardous material exposure to the public below offsite evaluation guidelines.

Safety-Significant SSC. A SSC that is not designated as a Safety-Class SSC but whose preventive and mitigative function is a major contributor to defense in depth or to worker (employee) safety. The Safety-Significant SSC designator, with respect to worker safety, is limited to those SSCs whose failure is estimated to result in an acute worker fatality or serious injuries (life threatening or permanently disabling injuries from other than standard industrial hazards). This designator specifically excludes potential latent effects.

Unreviewed Safety Question (USQ). A situation for which one or more of the specified USQD criteria are met, signifying a risk factor that exceeds that which DOE has previously accepted in the facility authorization basis. The expression "involves a USQ" is equivalent to "a USQ exists" and a "positive USQD."

ATTACHMENT B
USQ PROCESS FLOW CHARTS

Please see separate link to view this flowchart.

Please see separate link to view this flowchart.

Please see separate link to view this flowchart.

ATTACHMENT C
USQ FORM

SUMMARY OF RESULTS

These initial pages provide a summary of the results of the USQ processing on the subject change, based on the USQ considerations on the subsequent pages.

Item No. _____ Title:

_____

_____

Summary Description of the matter being considered:

_____

_____

_____

_____

_____

_____

_____

_____

PRELIMINARY CONSIDERATIONS (PRE-SCREENING):

1. This matter **does NOT require further USQ consideration**. That is, it screens out, does NOT involve a USQ, and contractor approval is sufficient.

   The answer to one of questions 9.3.2, 9.3.3, 9.3.5, 9.3.6, 9.3.14, or 9.4.1 is positive. ‘ Yes ‘ No

2. This matter **requires USQ screening**. That is, it screens in, and whether or not a USQ is involved has not been determined at this point in the processing.

   The answer to one or more of questions 9.3.10, 9.3.14, 9.3.16, 9.4.2, 9.4.3, 9.4.4 is positive . ‘ Yes ‘ No

3.	**This matter involves a "potentially inadequate safety analyses."** The answer to question 9.3.12 is positive.	‘ Yes	‘ No
4.	This matter **requires DOE safety review and approval**. That is, a request for amendment to the authorization basis should be prepared and submitted to DOE. The answer to one or more of questions 9.1, 9.2.1, 9.2.2, 9.3.7, 9.3.8, or 9.3.9 is positive.	‘ Yes	‘ No

USQ SCREEN:

1. This matter does NOT require further USQ consideration. That is, it **screens out**, does not require a USQD, does NOT involve a USQ, DOE approval is NOT required, and contractor approval is sufficient.

   The answers to questions 10.1, 10.2.5, 10.3.7, and 10.3.8 are all negative. ‘ Yes ‘ No

2. This matter requires a USQD. That is, it **screens in**, and whether or not a USQ is involved has not been determined at this point in the processing.

   ‘ Yes ‘ No

   The answer to one or more of question(s) 10.1, 10.2.5, 10.3.7, or 10.3.8 are positive.

3. **This matter involves a "potentially inadequate safety analyses."**

   The answer to question 10.2.6 is positive. ‘ Yes ‘ No

USQD:

1. This matter **does NOT involve a USQ**. That is, DOE safety review and approval is NOT required, and contractor final approval is sufficient.

   ‘ Yes ‘ No

   The answers to the USQD questions are all negative.

2. This matter **DOES involve a USQ**. That is, a request for amendment to the authorization basis should be prepared and submitted to DOE.

   ‘ Yes ‘ No

   The answer to one or more of the USQD questions is positive

If the matter does involve a USQ, state the questions for which the answer is positive.

_____

_____

_____

_____

USQ Processors:

Preliminary Considerations (Pre-screen):

Preparer's Signature	Preparer's Org.	Date
Qualified USQ Tech Reviewer's Signature	Reviewer's Org.	Date

USQ Screen:

Preparer's Signature	Preparer's Org.	Date
Qualified USQ Tech Reviewer's Signature	Reviewer's Org.	Date

USQD:

Preparer's Signature	Preparer's Org.	Date
Qualified USQ Tech Reviewer's Signature	Reviewer's Org.	Date

Sponsoring Org. Technical Concurrence:

Reviewer's Signature	Reviewer's Org.	Date

Management Approval:

Approver's Signature	Approver's Org.	Date

Sr. Management Approval (For positive USQDs only):

Approver's Signature	Approver's Org.	Date

USQ CONSIDERATIONS

NOTE: The steps on this form have been number to match the steps in the procedure.

Item No. _____ **Title:** _____

PRELIMINARY CONSIDERATIONS (PRE-SCREENING):

Except where specifically instructed otherwise, all the steps of the pre-screening, USQ screening, and USQD are to be completed.

9.1	**Does this matter involve a change to a requirement in the TSRs?**	‘ Yes	‘ No
	If YES, Prepare a request for an amendment to the authorization basis.		
9.2	**Does this matter involve a NEW Activity at this facility?**	‘ Yes	‘ No
	If NO, Go To Step 9.3		
9.2.1	Does this new activity introduce a technology that is new to this facility?	‘ Yes	‘ No
	If YES, Prepare a request for an amendment to the authorization basis.		
9.2.2	Does the new activity involve hardware changes that are so extensive as to be beyond those required for day-to-day operations?	‘ Yes	‘ No
	If YES, Prepare a request for an amendment to the authorization basis.		
9.2.3	Has management decided to submit this new activity to DOE, regardless of whether a USQ is or is not involved?	‘ Yes	‘ No
	If YES, Prepare a request for an amendment to the authorization basis.		
9.2.4	Has a hazards analysis or safety analysis been completed for this new activity and provided?	‘ Yes	‘ No
	If NO, Return this matter to change control process for the development of an appropriate safety analysis.		
9.3	**Does this matter involve a Hardware Modification?**	‘ Yes	‘ No
	If NO, Go To Step 9.4		
9.3.1	Is this a planned hardware modification (versus an “as-found” change)?	‘ Yes	‘ No
	If NO, Go To Step 9.3.11		
9.3.2	Is this an exact replacement (Same Mfgr, Same Model No., etc.)	‘ Yes	‘ No
	If YES, This action is a pure maintenance repair action.		
9.3.3	Is the new hardware on the “Approved Equivalent Parts” list?	‘ Yes	‘ No
	If YES, This change will exit this procedure.		
9.3.4	Does this modification involve only programmatic/experimental equipment (versus “facility” equipment)?	‘ Yes	‘ No
	If NO, Go To Step 9.3.6		

Item No. _____ **Title:** _____

9.3.5	Does the modified equipment remain within the safety envelope established for this programmatic/experimental activity? If YES, This change will exit this procedure.	‘	Yes	‘	No
9.3.6	Are normal commercial practices sufficient for this change (versus a nuclear-grade formal change control process)? If YES, This change will exit this procedure.	‘	Yes	‘	No
9.3.7	Does this modification introduce a technology that is new to this facility? If YES, Prepare a request for an amendment to the authorization basis.	‘	Yes	‘	No
9.3.8	Does this modification go beyond that needed for day-to-operations, that is, it is a major modification? If YES, Prepare a request for an amendment to the authorization basis.	‘	Yes	‘	No
9.3.9	Has management decided to submit this hardware modification to DOE, regardless of whether a USQ is or is not involved? If YES, Prepare a request for an amendment to the authorization basis.	‘	Yes	‘	No
9.3.10	Has a hazards analysis or safety analysis been completed for this hardware modification and provided? If NO, Return this matter to change control process for the development of an appropriate safety analysis.	‘	Yes	‘	No
9.3.11	Are you evaluating the **condition of the discrepant as-found change** (versus corrective actions related to the as-found change)? If NO, Go To Step 9.3.13	‘	Yes	‘	No
9.3.12	Does this situation involve a discrepancy with the TSR(s) If YES, Go To the PISA Section (Step 9.5.1) If NO, This change will require USQ Screening.	‘	Yes	‘	No
9.3.13	As a corrective action to resolve the discrepant as-found change, is the proposed disposition an exact “restoration modification”? If YES, This change will exit this procedure.	‘	Yes	‘	No
9.4	**Does this matter involve a revision to paper work?** If NO, Go To Step 9.5.1	‘	Yes	‘	No
9.4.1	Are the revisions purely editorial without any technical change? if YES, This change will exit this procedure.	‘	Yes	‘	No
9.4.2	Do the revisions involve a procedure? If YES, This change will require USQ Screening.	‘	Yes	‘	No
9.4.3	Do the revisions involve a design document? If YES, Treat this revision as a design change; it will require USQ Screening.	‘	Yes	‘	No

Item No. _____ **Title:** _____

9.4.4 Do the revisions involve the bases for a TSR requirement? ‘ Yes ‘ No

If YES, Prepare the revision to the FSAR/BIO; USQ Screening will be required on that revision.

Go to the beginning of this form and complete the summary of the results for the Preliminary Considerations (Pre-screening) section. This will ensure that we go the proper next step.

Item No. _____ **Title:** _____

USQ SCREEN:

10.1	**Does this change involve a new activity (operation, activity, text, or experiment) that is not bounded by those activities listed in Attachment D to this procedure?** NOTE: Pending the development of a list of activities that are identified in the authorization basis (Attachment D), this step will have to be performed manually against the authorization basis documents. The question in that case becomes: "Does this change involve an activity that is not bounded by those identified in the authorization basis documents?" If YES, This new activity requires a USQD.	‘ Yes	‘ No
10.2.1	**Does this change involve a hardware modification (or revision to a design document) that affects any of the structures, systems, or components (SSCs) that are listed in Attachment E to this procedure?** NOTE: Pending the development of a list of SSCs that are identified explicitly in the authorization basis (Attachment E), this step will have to be performed manually against the authorization basis documents. The question in that case becomes: "Does this change affect any of the structures, systems, or components (SSCs) that are identified explicitly in the authorization basis documents?"	‘ Yes	‘ No
10.2.2	Is this hardware modification (or revision to a design document) related to any of the structures, systems, or components (SSCs) that are implicitly included on the list of SSCs in Attachment E to this procedure? (The NOTE to step 10.2.1 applies here also.)	‘ Yes	‘ No
10.2.3	For new hardware or systems to be installed (that are not identified in the authorization basis), is the nature of the new equipment such that if the authorization basis were being updated after this new equipment has been installed, would it be identified in the updated authorization basis? If YES, This change requires a USQD.	‘ Yes	‘ No
10.2.4	Is this hardware modification <u>completely</u> encompassed by a prior USQD, including any differences in location? If YES, Identify the prior USQD below. _____ _____ _____ _____	‘ Yes	‘ No
10.2.5	For this hardware modification, the answer to 10.2.1, 10.2.2 or 10.2.3 is YES, AND the answer to 10.2.3 is NO?	‘ Yes	‘ No

Item No. _____ **Title:** _____

	If YES, This hardware modification requires a USQD.		
10.2.6	Does this matter involve a "Discrepant As-Found Condition" and the answer to 10.2.1 or 10.2.2 is positive? If YES, **This change involves a "potentially inadequate safety analyses."**	‘ Yes	‘ No
10.3.1	**Does this change involve a revision to a procedure that is listed in Attachment F to this procedure?** NOTE: Pending the development of a list of procedures that are identified in the authorization basis (Attachment F), this step will have to be performed manually against the authorization basis documents. The question in that case becomes: "Does this change involve a revision to a procedure that is identified in the authorization basis documents?"	‘ Yes	‘ No
10.3.2	Does the revision affect a procedure that is implicitly included in Attachment F, because it is an operational, surveillance, or maintenance procedure for a safety SSC identified in the authorization basis?	‘ Yes	‘ Yes
10.3.3	Does the revision affect a procedure that is implicitly included in Attachment F, because it is the top-level procedure that implements a Safety Management Program that is committed to in the authorization basis.	‘ Yes	‘ No
10.3.4	For a new procedure (that is not identified in the authorization basis), is the nature of the new equipment such that if the authorization basis were being updated after this new procedure had been implemented, would it be identified in the updated authorization basis?	‘ Yes	‘ No
10.3.5	Is the procedural revision covered by one of the approved categorical exclusions listed in Attachment G to this procedure?	‘ Yes	‘ No
10.3.6	Is this procedural revision <u>completely</u> encompassed by a prior USQD? If YES, Identify the prior USQD below. _____ _____	‘ Yes	‘ No
10.3.7	For this revision, the answer to 10.3.1, 10.3.2, 10.3.3, or 10.3.4 is YES, AND the answer to 10.3.5 is NO? If YES, This revision requires a USQD.	‘ Yes	‘ No
10.3.8	For this revision, the answer to 10.3.1, 10.3.2, 10.3.3, or 10.3.4 is YES, AND the answer to 10.3.6 is NO? If YES, This revision requires a USQD.	‘ Yes	‘ No

Item No. _____ **Title:** _____

SUMMARY FOR USQ SCREENING:

10.4.1	For this matter, the answers to 10.1, 10.2.5, 10.3.7, and 10.3.8 are all No? If YES, This matter "screens out" and hence does NOT require a USQD. If NO, This matter "screens in" and hence requires a USQD.	‘ Yes	‘ No
10.4.2	For this matter, the answer to 10.2.6 is positive? If YES, **This matter involves a "potentially inadequate safety analyses."**	‘ Yes	‘ No

Go to the beginning of this form and complete the summary of the results for the USQ Screening section. This will ensure that we go to the proper next step.

Item No. _____ **Title:** _____

USQD:

11.1	Would the matter increase the probability of occurrence of an accident previously evaluated in the facility authorization basis? Provide the basis for the answer, using as many lines as is appropriate.	‘ Yes	‘ No
11.2	Would the matter increase the consequences of an accident previously evaluated in the facility authorization basis? Provide the basis for the answer, using as many lines as is appropriate.	‘ Yes	‘ No
11.3	Would the matter increase the probability of malfunction of a safety SSC previously evaluated in the facility authorization basis? Provide the basis for the answer, using as many lines as is appropriate.	‘ Yes	‘ No
11.4	Would the matter increase the consequences of malfunction of a safety SSC previously evaluated in the facility authorization basis? Provide the basis for the answer, using as many lines as is appropriate.	‘ Yes	‘ No
11.5	Would the matter create the possibility of an accident of a different type than any previously evaluated in the facility authorization basis? Provide the basis for the answer, using as many lines as is appropriate.	‘ Yes	‘ No
11.6	Would the matter create the possibility of a malfunction of a safety SSC of a different type than any previously evaluated in the facility authorization basis? Provide the basis for the answer, using as many lines as is appropriate.	‘ Yes	‘ No
11.7	Would the matter reduce any margin of safety defined in the facility authorization basis? Provide the basis for the answer, using as many lines as is appropriate.	‘ Yes	‘ No

Go to the beginning of this form and complete the summary of the results for the USQD section.

REFERENCES:

Identify the reference documents that were actually consulted in the preparation of the USQ documents. These include those references that describe the change, those that evaluate the safety aspects of the change, other reference material such as system design descriptions and drawings, and authorization basis documents.

ATTACHMENT D

ACTIVITIES, OPERATIONS, TESTS, AND EXPERIMENTS IDENTIFIED IN THE AUTHORIZATION BASIS

This space is reserved for the development of a list of all activities identified in the authorization basis.

ATTACHMENT E

STRUCTURES, SYSTEMS, AND COMPONENTS IDENTIFIED IN THE AUTHORIZATION BASIS

This space is reserved for the development of a list of all SSCs identified in the authorization basis.

ATTACHMENT F

PROCEDURES IDENTIFIED IN THE AUTHORIZATION BASIS

This space is reserved for the development of a list of all procedures identified in the authorization basis.

ATTACHMENT G

APPROVED CATEGORICAL EXCLUSIONS

This space is reserved to identify those categorical exclusions that have been approved for use with the USQ process at this facility. At this time, no categorical exclusions have been approved.